

**REMARKS**

Claims 1-19 are pending in the present application. Claims 1-19 are rejected. No new matter has been entered.

**Impropriety of Finality of Office Action**

Applicants submit that the finality of the Office Action is improper. Applicants request reconsideration and withdrawal of the finality of the Office Action.

According to the Manual of Patent Examining Procedure, §706.07(a), “second or subsequent actions on the merits shall be final, *except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement.*”

The Examiner includes several new grounds of rejection in the Office Action, including rejections of claims 7, 11, 18 and 19, which were previously indicated as allowable. The Examiner asserts that the finality of the Office Action was due to Applicant's amendment of the claims. However, the only amendment that Applicant made to the claims was a typographical error correction in claim 7 of “nitride” to “nitric”. This should not have caused the Examiner to reject the claim, especially because the Examiner previously interpreted the claim as if it included the intended term “nitric”. (Note “Allowable Subject Matter”, page 5 of the Office Action dated March 22, 2005.) Therefore, Applicants submit that the finality is incorrect, and should be withdrawn.

**Claim Rejections - 35 U.S.C. §103(a)**

Claims 1, 2, 4, 6, 8, 9, 12, 14 and 16 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Misium et al. (US Patent 6,261,973) in view of Wong (US Patent 5,423,944). The Examiner asserts that it would have been obvious to combine the teachings of Misium and Wong because the “oxidizing agents such as nitric acid help remove defects” (as noted in Wong column 1 lines 20-25).

Claims 1, 2, 3, 5, 11, 18 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Dobuzinsky et al. (US Patent 5,412,246). The Examiner admits that Wong fails to disclose forming a second insulation film by low temperature processing. The Examiner concludes that it would have been obvious to combine the teachings of Dobuzinsky et al. in view of Wong because the oxidizing agents such as nitric acid help remove defects (see Wong column 1, lines 20-25).

Claims 13 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Dobuzinsky et al. as applied to claim 3 above, and further in view of Misium et al. The Examiner admits that Wong and Dobuzinsky et al. fail to teach the use of nitric acid and an ozone containing solution. The Examiner concludes that it would have been obvious to one of ordinary skill to combine the teachings of Wong, Dobuzinsky et al. and Misium et al. because the oxidizing agents such as nitric acid help remove defects (Wong column 1, lines 20-25).

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Misium et al. in view of Wong. The Examiner concludes that it would have been obvious to make an oxide film greater than 1 nm, since it has been held that where the general conditions of a claim are

disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

Claim 19 is rejected under 35 U.S.C. §103(a) as being unpatentable over Wong in view of Dobuzinsky et al. The Examiner admits that Wong fails to disclose forming a second insulation film by low temperature processing after a fixed period of time. The Examiner concludes that because Dobuzinsky et al. forms the nitride after the oxide, there is inherently a fixed period of time.

Applicants respectfully disagree with the rejection because even if properly combined, not all of the claimed limitations are met by the cited references.

The Examiner asserts that Misium et al. and Dobuzinsky et al. disclose forming a first insulation film on the substrate then forming a second dielectric film on the first insulation film by low temperature processing, and Wong discloses forming a first isolation film by using a strong acid solution, and therefore the present invention (claim 1) is obvious from the combination of Misium et al. and Wong.

Applicants admit that Wong teaches a chemical oxide film (insulation film) formed by using nitric acid  $\text{HNO}_3$  or hydrogen peroxide  $\text{H}_2\text{O}_2$ . However, in Wong, the chemical oxide film is removed by etching with hydrogen fluoride  $\text{HF}$  immediately after being formed, which is described in Column 1, lines 19-22. The phrase "oxidation-etch mechanism" indicates that the oxide film is etched and removed.

In other words, in Wong, no chemical oxide film formed by  $\text{HNO}_3$  remains on the substrate. Since there is no chemical oxide film left, the second film can not “embrace” it, as required in claim 1.

On the other hand, in claim 1 of the present invention, since a chemical oxide film formed by  $\text{HNO}_3$  or ozone is used without being removed, there is an advantage that a gate insulation film (second insulation film) embracing the chemical oxide film (first insulation film) can be formed as a film which is not to allow the impurities to easily adhere thereto. Neither Misium et al. nor Wong discloses or suggests this point, therefore, even if Misium et al. and Wong are combined, the present invention of claim 1 and claims dependent therefrom is not reached.

Claims 7, 11, 17 and 18 were previously indicated as Allowable Subject Matter; however, these are rejected without any new ground or new cited references in this office action.

The Examiner admits that both of Misium and Wong fails to teach the feature of claim 7 of the present invention, but mentions that it would have been obvious to one skill in the art “to heat the nitric acid solution above 70 deg C”. The temperature of “above 70 deg C” is not a normal temperature in a normal usage, and in order to make the solution to above 70 deg C it needs to be heated. There is no suggestion in either Misium et al. or Wong to heat the solution.

Applicants note that claims 11, 17 and 18 are dependent from claim 1, and necessarily include at least its limitations. Therefore, since claim 1 has been distinguished as noted above, claims 11, 17 and 18 are necessarily allowable.

Further with respect to claims 11, 17 and 18, neither Wong nor Dobuzinsky et al. discloses forming a gate insulation film or a tunnel insulation film by low temperature processing. Further, in Wong, the insulation film formed by nitric acid or ozone is removed, as discussed above. Therefore, even if Wong and Dobuzinsky et al. are combined, such combination would not reach the present invention (claims 11, 17 and 18).


In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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